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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,778	11/14/2003	Angelo Magri	02-CT-372/DP (2110-86-3)	8768

996 7590 04/12/2006

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EXAMINER	
WEISS, HOWARD	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 04/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/713,778	MAGRI ET AL.	
	Examiner	Art Unit	
	Howard Weiss	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) *2,3,6-11,13-15 and 17-19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,12,16 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Attorney's Docket Number: 02-CT-372/DP (2110-86-3)

Filing Date: 11/14/03

Continuing Data: none

Claimed Foreign Priority Date: 11/14/02 (EPO)

Applicant(s): Magri et al. (Frisina)

Examiner: Howard Weiss

Drawings

1. The drawings were received on 2/2/2006. These drawings are acceptable.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Initially, and with respect to Claims 1, 12 and 20 , note that a "product by process" claim is directed to the product per se, no matter how actually made. See *In re Thorpe et al., 227 USPQ 964 (CAFC, 1985)* and the related case law cited therein which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe,

> even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. *In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); Buono v. Yankee Maid Dress Corp., 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935).*

Note that Applicant has burden of proof in such cases as the above case law makes clear.

3. Claims 1, 4, 5, 12, 16 and 20 to 22 are rejected under 35 U.S.C. 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Blanchard (U.S. Patent No. 6,724,039).

   Blanchard shows all aspects of the instant invention (e.g. Figures 3A to 9) including:
   - an epitaxial drain region **66** on a semiconductor crystal **64**
   - first and second gate stacks comprising dielectric gate oxide layer **92,** polysilicon gate electrode **72**, first dielectric layer **74** on the top surface of said gate electrode and dielectric spacers on the sidewalls of said gate electrode
   - an aperture (i.e. trench) **78** extending beyond the surface of said drain region and defined by said gate stacks
   - first and second source **82** and body **80** regions with portions adjoining said aperture sidewalls and having a depth greater than said aperture (Column 6 Lines 13 to 16)
   - contact openings and metal region **86**

   As to the grounds of rejection under section 103(a) and of "product by process", how the first dielectric layer and spacers are formed, either by being independent of the diffusion conditions of a body region or gate doping levels, pertain to intermediate process steps and does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims and recommends the alternative (§ 102 / § 103) grounds of rejection. Also, it is obvious to have the spacers as part of the dielectric layer (see Response to Arguments below).

4. Claims 1, 4, 5, 12, 16 and 20 to 22 are rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Mihara (U.S. Patent No. 4,823,172).

Mihara shows all aspects of the instant invention (e.g. Figure 5) including:

- an epitaxial drain region **3** on a semiconductor crystal **2**
- first and second gate stacks comprising dielectric gate oxide layer **7,** polysilicon gate electrode **8**, first dielectric layer **9** on the top surface of said gate electrode and dielectric spacers on the sidewalls of said gate electrode
- an aperture (i.e. trench) **13** extending beyond the surface of said drain region and defined by said gate stacks
- first and second source **6** and body **15** regions with portions adjoining said aperture sidewalls and having a depth greater than said aperture
- contact openings and metal region **11**

As to the grounds of rejection under section 103(a) and of "product by process", how the first dielectric layer and spacers are formed, either by being independent of the diffusion conditions of a body region or gate doping levels, pertain to intermediate process steps and does not affect the final device structure. See MPEP § 2113 which discusses the handling of "product by process" claims and recommends the alternative (§ 102 / § 103) grounds of rejection. Also, it is obvious to have the spacers as part of the dielectric layer (see Response to Arguments below).

Response to Arguments

5. Applicant's arguments filed 2/2/2006 have been fully considered but they are not persuasive. In reference to the thicknesses of the dielectric layer and spacers being influenced by the dopent concentrations, the limitation is a "product-by-product" limitation and the rejections above have been modified accordingly. Additionally, there is nothing ion the prior art of record to indicate that the thicknesses are influenced by the doping concentration in the device or that this is a problem. For example, Blanchard states that the thickness of the oxide layers maybe influenced by heating (Column 5 Lines 65 and 66) but does not mention anything about the dopent concentrations.

In reference to the first dielectric layer and spacer being separate features, the grounds of rejection under 35 U.S.C. § 103 based on separate vs. integral dielectric layers deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

> In *Howard v. Detroit Stove Works 150 U.S. 164 (1893),* the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."
>
> In *In re Larson 144 USPQ 347 (CCPA 1965*), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited *In re Fridolph* for support. *In re Fridolph 135 USPQ 319 (CCPA 1962)* deals with submitted affidavits relating to this issue. The underlying issue in *In re Fridolph* was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

In the instant case, the use of separate dielectric layers in place of an integral piece would not have involved an inventive step as set forth in the case law above since both yield the same structure. Therefore, it would have been obvious to one of ordinary skill in the art to use separate dielectric layers for the spacers and first dielectric layer instead of integral dielectric layer which includes spacers as "merely a matter of obvious engineering choice" as set forth in the above case law.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

8. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via **Howard.Weiss@uspto.gov**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.

10. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/155, 341	thru 4/6/2006
Other Documentation: none	
Electronic Database(s): EAST	thru 4/6/2006

HW/hw
6 April 2006

Howard Weiss
Primary Examiner
Art Unit 2814